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09/897,116	07/03/2001	Naoki Hara	50195-262	9227
20277	7590	02/02/2004	EXAMINER	
MCDERMOTT WILL & EMERY 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			TSANG FOSTER, SUSY N	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/897,116

Applicant(s)

HARA ET AL.

Examiner

Susy N Tsang-Foster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 6-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is responsive to the amendment filed on 11/12/2003. Claims 1-3 have been amended. Claims 1-15 are pending. Claims 6-15 are withdrawn from further consideration as being drawn to a nonelected species. Claims 1-3, and 5 are finally rejected for reasons necessitated by applicant's amendment. Claim 4 is objected to as containing allowable subject matter.

### ***Drawings***

2. The drawings were received on 11/12/2003. These drawings are approved by the Examiner.

### ***Specification***

3. The disclosure is objected to because of the following informalities:

In Table 1, in Comparative Example b, the ion conductivity should read 0.018 S/cm not 0.01 S/cm when compared to original Figure 5.

In the paragraph beginning on page 6, line 17, the brackets [] should not be used around the formula because these symbols signify deleting what is enclosed therein. It is recommended to the applicant to use braces {} instead of the brackets for the formula on page 6 in the amendment.

Appropriate correction is required.

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***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Miyashita et al. (US 5,731,097).

Miyashita et al. disclose a solid oxide fuel cell comprising an electrolyte layer La<sub>0.8</sub>Sr<sub>0.2</sub>MnO<sub>2</sub> (film 38) having a thickness of 600 micron and a YSZ film 36 (the second electrolyte layer) of 10 microns thickness formed on the LSM film, the YSZ and LSM films being sandwiched between an anode and a cathode (the air electrode) with the YSZ film placed between the LSM film and the air electrode (col. 6, lines 23-48 and Figure 8).

Miyashita et al. also disclose that the LSM film is oxygen ion conductive and also electronically conductive, that is, exhibiting mixed conductivity and inherently has oxygen ion

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conduction as main conduction under operational condition of the solid oxide fuel cell since it is used in the fuel cell as the electrolyte layer between the anode and the cathode.

Furthermore, YSZ disclosed in the reference is identical to the second electrolyte layer disclosed and claimed by the present application. YSZ is known in the art has a high oxygen ion conductivity (see also applicant's specification which states that YSZ has a oxygen ion transport number of 99% or higher) and should inherently have a higher oxygen ion conductivity than the mixed LSM conductor disclosed by Miyashita. The formula given in claim 2 is inherently met by the solid oxide fuel cell disclosed by Miyashita since  $L_p$  is 600 microns and  $L_c$  is 10 microns and both  $\tau_{po}$  and  $\sigma_p$  should inherently be less than  $\tau_{co}$  and  $\sigma_c$ .

The court has held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See also MPEP 2112 and 2112.01. When the Examiner has provided a sound basis for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

### ***Claim Rejections - 35 USC § 103***

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (US 5,731,097) .

Miyashita et al. disclose all the limitations of claim 3 above except for disclosing that the formula in instant claim 3 is satisfied.

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However, the values for  $t_{co}$  and  $\sigma_c$  for the second electrolyte layer of Miyashita et al. should be identical to those disclosed by applicant since the same second electrolyte layer material YSZ is used. The open circuit voltage of the fuel cell of Miyashita et al. disclosed in Figure 8 is 0.38 V at 600 °C. The value of J depends on the load current density of the fuel cell.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to satisfy the formula of instant claim 3 because the formula depends on the load current density that the fuel cell is subjected to and the given values for the first electrolyte layer thickness and the second electrolyte layer thickness and the load current density of the solid oxide fuel cell varies depending on the load demand and the maximum load current density that J can have is an inherent value of the solid oxide fuel cell.

The court has held that claiming of a property or characteristic which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). See also MPEP 2112 and 2112.01. When the Examiner has provided a sound basis for believing that the products of the applicant and the prior art are the same, the burden of proof is shifted to the applicant to prove that the product shown in the prior art does not possess the characteristics of the claimed product. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

#### ***Allowable Subject Matter***

8. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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9. The following is a statement of reasons for the indication of allowable subject matter:

The closest prior art of record, Miyashita et al. (US 5,731,097) does not disclose, teach, or suggest the distinguishing feature of the first perovskite solid electrolyte layer having the LaGa based perovskite compound given by the formula recited in claim 4. Miyashita et al. disclose that the first perovskite solid electrolyte layer is  $\text{La}_{0.8}\text{Sr}_{0.2}\text{MnO}_3$ , referred to as a LSM film (col. 6, lines 23-48 of the reference) provided in the solid oxide fuel cell comprising a YSZ film between the cathode and a first surface of the LSM film and an anode provided on the second surface of the LSM film.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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11. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

st/ *Susy Tsang-Foster*

Susy Tsang-Foster  
Primary Examiner  
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